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EVALUATION OF 48-HOUR WEANING AND/OR SYNCRO-MATE-B OR ESTRUMATE HORMONE TREATMENTS IN CONTROLLED BREEDING OF BEEF COWS

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TO EVALUATE 48-HOUR WEANING AND/OR SYNCRO-MATE-B OR ESTRUMATE HORMONE TREATMENTS IN CONTROLLED BREEDING OF BEEF COWS

Duane McCartney, Agriculture Canada Research Station, Melfort, Saskatchevan

Bill Cates and Reuben Mapletoft, Western College of Veterinary Medicine, Saskatoon, Saskatchevan

Dave Spurr, Agriculture Canada Research Station, Saskatoon, Saskatchevan

ABSTRACT

The Melfort Research Station in cooperation with the Western College of Veterinary Medicine has conducted a 3 yr study to evaluate different methods of causing cows to cycle earlier in the breeding season. Cows were either treated as controls, or hormonally with Estrumate or Syncro-Mate-B. Half of the calves in each group were weaned for 48 hours prior to the start of the breeding season. Forty-eight hour calf weaning resulted in a significantly higher proportion of animals calving in less than 365 days and tended to result in more cows calving in the first 21 days of the next calving season. There was no benefit in using any of the hormonal treatments.

BACKGROUND AND OBJECTIVES

Cow-calf operators often have an extended calving season. This may result from some cows failing to show estrus within a reasonable period of time after calving the previous year. At weaning time there is a wide weight range of calves resulting in reduced selling prices to the producer. Research in the United States has shown that Syncro-Mate-B and weaning the calf from the cow 48 hours prior to breeding can affect the time of onset of cyclicity. Duetscher has shown that the percentage of heifers cycling and becoming pregnant to Artificial Insemination during the first 5 days of the breeding season was considerably higher for a SMB group than for a non-treated control group under AI program, (90% vs 27% cycling and 50% vs 18% pregnant. Wiltbank has shown conception rate at first service to be higher (80%) when calves were removed for 48 hours prior to breeding as compared non-weaned controls (50%). Eighty percent of the cows managed under the calf removal system calved in the first 20 days of the subsequent calving season in contrast to 28% of the control group.

For the past 10 years the Melfort Research Station has evaluated two different calving management schemes, i.e. Jan.-Feb. vs April-May. As the study concluded in 1986, it was decided to evaluate the use of 48-hour weaning, and hormonal treatment to gradually move the April-May calving group to a February calving date. The information learned in this study could then be related to similar on farm situations.

EXPERIMENTAL METHOD

A study was set up at the Melfort Research Station in cooperation with Dr. Bill Cates and Dr. Reuben Mapletoft of the Western College of Veterinary Medicine to evaluate the effect of weaning and the use of hormones in controlled breeding of beef cows.

Angus x Hereford and Simmental x Hereford cows were allotted to their experimental treatments on April 30, 1986. All cows that had calved by March 15 (45 days post-partum) were sorted and divided into six groups consisting of (weaning vs no weaning) x (Control vs Syncro-Mate-B vs Estrumate) in a 2 x 3 design. Thus half the calves were weaned. Cows were either treated as controls, Estrumate or Syncro-Mate-B within weaned and non-weaned pens. Cows and calves were weighed and udders examined prior to and at the conclusion of weaning in order to evaluate the effects of weaning. Weaned calves were locked inside a metal cattle shed for 48 hours and bedding, water and hay were supplied. The breeding season lasted 6 weeks at which time pregnancy checking was done. A second replicate of the study commenced on May 14, 1986, and included the balance of the late cow herd.

Syncro-Mate-B supplied by SANOFI Inc., Victoriaville, Quebec, under an experimental permit contains a synthetic form of progesterone called norgestomet. It is designed to prevent the female from exhibiting estrus, or ovulating, as long as it remains implanted. The Syncro-Mate-B treatment consisted of a 6 mg norgestomet implant and an injection of 3 mg norgestomet and 5 mg estradiol valerate. The implants were removed 9 days later.

Estrumate supplied by Coopers Agropharm, Ajax, Ontario, is a synthetic prostaglandin F2 analogue cloprostenol. It causes a functional and morphological regression of the corpus luteum in cattle. This usually results in estrus two to five days after treatment, followed by ovulation with normal fertility. Estrumate was administered twice, at the time of the SMB implants and again at the time of SMB implant removal.

Calves were removed at the time of Syncro-Mate-B implant removal or the second Estrumate injection, and the bulls were introduced to the respective breeding groups at that time. The bulls used were supplied by PFRA and remained with the cows for a 6 week breeding season. Bulls were evaluated for breeding soundness and underwent a service capacity test prior to use.

Cows were pregnancy checked June 24, July 23 and August 20, 1986, and 134 cows were diagnosed pregnant in the non-weaned group vs 138 in the weaned group. One hundred cows conceived in the control group, 108 conceived in the Estrumate group and 102 conceived in the Syncro-Mate-B group. No obvious detrimental effects were observed on the cows or calves as a result of weaning. The calving season commenced on Feb. 1, 1987.

A similar trial was conducted in 1987 with 285 Simmental x Hereford and Angus x Hereford cows. All cows were bred in a 6 week breeding season starting on April 30 to Charolais bulls. A group of 42 Angus x Hereford heifers were also divided into control, Syncro-Mate-B or Estrumate groups and

bred to Angus bulls in the same 6 week season. All animals were pregnancy checked on July 28 and late November 1987. Eighteen out of 285 cows and seven out of 42 heifers were diagnosed open. Three of the heifers never cycled.

In late November of 1987, the 19 open cows and 3 open heifers were slaughtered and their reproductive tracts collected. Eleven cows had a damaged cervix, one of the heifers had a double cervix, and the three heifers had some degree of uterine hypoplasia. These reproductive problems could possibly have caused the failure to conceive.

Prior to and during the breeding season cows were fed 5 kg (11 lb.) of brome-alfalfa hay (1986) or 5 kg of barley silage (1987) on a dry matter basis, 3.6 kg (8 lb.) of barley grain (1986) or 2.7 kg (6 lb.) of barley grain (1987) with added vitamin A (50,000 IU/day), free choice barley straw, dicalcium phosphorus mineral mix and free choice cobalt iodized salt (Table 10). Cows were fed this ration until they were moved to pasture in late May and early June.

RESULTS

Collectively, there was a significantly higher number of cows, in the 48-hour weaning group, with calving intervals of less than 365 days in 1987 (83 vs 53) and 1988 (91 vs 82), (Table 1). The proportion of cows with calving intervals of less than and more than 365 days was not affected by the hormonal treatment or by breed of cow (Table 1a). The calving season was significantly altered from a two season system of mid winter (middle of January to early March) and early spring (April and early May) to a single season from Feb. 1 to middle of March. In 1985, 46% of the cows calved by March 12, and in 1988, 91% of the cows calved by March 12 or during the first 42 days of the calving season (Table 2b).

In 1987, the proportion of cows having calves in the first or second 21-day periods of the calving season was not found to be associated with 48-hour weaning or drug treatment. However, in 1988 the proportion of calves born in the first 21 day period was higher for the cows that had their calves removed for 48 hours at the start of the previous breeding season. Hormonal treatments did not have any significant effect on the proportion of cows that calved in the first 42 days of the calving season (Figs. 1-4).

Average calf gain for the first 3-4 weeks following weaning was 0.60 kg per day for the 48-hour weaned group vs 0.76 kg per day for the non-weaned group. This difference was highly significant. At fall weaning time this difference was still significant (1.13 kg per day vs 1.07 kg per day, respectively, Table 5).

All cows lost a similar amount of weight during the winter feeding and breeding season (Tables 6 & 8). Although cows lost some backfat as measured ultrasonically between the second last and last rib (Table 8), they were still in good body condition with average backfat measurements of 3.6 to 5.7 mm during the breeding season. Visual scores of 2.5 also indicated that the cows were in good body condition.

The nutritional level of the ration prior to and during the breeding season indicated that the cows were being fed above the TDN requriements (NRC 1984) of 5.9 kg for average milking ability (5 kg milk/day) and equal to the 7.1 kg TDN required for cows with superior milking ability (10 kg milk/day) (Table 10). There was very little difference in breeding performance as measured by calving interval of less than one year for control and non-weaned cows as compared to all other treatments (Tables 1 & 4). Therefore, adequate levels of energy insured that these cows would cycle early in the season and calve with an interval of less than 365 days.

CONCLUSION

Cows that previously calved in April and May were successfully moved back to the Feb.-March calving season over the course of two breeding seasons.

There appears to be a trend towards a higher proportion of calves born during the first 21 days of the calving season from cows that were weaned for 48 hours at the start of the breeding season. Drug treatments of Syncro-Mate-B or Estrumate did not significantly alter the calving interval or the proportion of cows calving in the first 21 days of the calving season.

Forty-eight hour calf removal resulted in a 5% reduction in calf weight gain, a fact which has not been previously reported.

Cows fed energy levels adequate for their milk production according to NRC 1984 requirements had similar breeding performance as measured by calving interval; whether they were weaned for 48-hours or not treated with Syncro-Mate-B or Estrumate.

ACKNOWLEDGMENTS

We appreciate and thank Saskatchevan Agriculture Research Fund and Horned Cattle Trust Fund for financial support; SANOFI Inc., Victoriaville, Quebec and Coopers Agropharm, Ajax, Ontario, for hormonal prepration; Prairie Farm Rehabilitation Administration Bull Station for bulls; Drs. Albert Barth and Frank Bristol, Western College of Veterinary Medicine, for semen evaluation of bulls and pregnancy checking of cows; Dr. Dave Spurr, Agriculture Canada Research Station, Saskatoon, for statistical analysis; and to the livestock staff of the Melfort Research Station for technical support.

Table 1. Percentage of cows with calving intervals less than and greater than 365 days in the three years.

	1986		1987		1988	
	LT365	GT365	LT365	GT365	LT365	GT365
	----- % -----		----- % -----		----- % -----	
Drug Group						
Control	54	46	71	29	58	42
Estrumate	-	-	73	27	60	40
Syncro-Mate-B	-	-	72	28	58	42
Weaning Group						
Weaned	-	-	76	24	70	30
Not-weaned	-	-	67	33	50	50
Calf died (number)	-	-	4	1	3	9
Breed						
HA	57	43	70	30	58	42
HS	51	49	74	26	59	41
Total cows	232		247		283	

Table 1a. Percentage of cows with calving intervals less than and greater than 365 days in the three years.
(Cows with live calves at the start of the breeding season)

	1987		1988	
	LT365	GT365	LT365	GT365
	----- % ------		----- % ------	
Drug Group				
Control	70	30	59	41
Estrumate	73	27	63	37
Syncro-Mate-B	71	29	58	42
Breed				
HA	70	30	60	40
HS	74	26	60	40
Total cows	242		226	

1. A significantly higher proportion of cows in the 48-hour weaning group had calving intervals less than 365 days in 1988.
2. The proportions of cows with calving intervals of less than and more than 365 days was no affected by drug treatment or breed.

Table 2. Percent of calves born in 21 day intervals (all treatments combined)

	1985	1986	1987	1988
	---------- % ----------			
Before Feb. 1	3	3	0	1
Feb. 1 - Feb. 21	27	19	34	49
Feb. 22 - Mar. 12	17	34	48	40
Mar. 13 - Apr. 2	21	31	15	9
Apr. 3 - Apr. 23	28	13	3	0
After Apr. 23	6	0	0	0
Total calves	300	286	276	282

Table 2a. Percentage of calves born in 21 day intervals for cows that had live calves at the start of the breeding season (1987 & 1988)

	1987	1988
	------- % -------	
Before Feb. 1	0	1
Feb. 1 - Feb. 21	34	49
Feb. 22 - Mar. 12	45	41
Mar. 13 - Apr. 2	16	7
Apr. 3 - Apr. 23	4	0
After Apr. 23	0	0
Total calves	242	227

Table 3. Number and percentage of calves born in first 42 days of calving season (Feb. 1 - March 12)

	1985*	1986*	1987	1988
Number of calves	138	157	225	256
% of total	46	55	82	91

*In 1985 and 1986 there were two calving seasons.

1. Drug treatment did not result in any significant difference in the proportion of cows that calved in the various time intervals.

2. In 1988 the proportion of calves born from Feb. 1 to Feb. 21 was higher for the 48-hour weaning group than for the non-weaned control group. This was not seen in the 1987 calving season.

Table 4. Mean calving intervals in days by weaning and/or drug treatment for calves born in 1987 and 1988.

	1987		1988	
	n	Mean	n	Mean
Weaning treatment (cows that had live calves)				
Not weaned	122	357.4	107	362.8
48 hr weaning	120	355.0	119	358.1
Drug treatment (includes cows that lost calves)[1]				
Control	85	356.1	80	362.0
Estrumate	84	355.9	85	362.9
Syncro-Mate-B	78	356.8	73	358.6
Average	247	356.3	238	361.3
Drug treatment (cows that had live calves)				
Control	84	356.3	74	360.6
Estrumate	81	355.6	79	361.6
Syncro-Mate-B	77	356.8	73	358.6
Average (cows with live calves)[a]	242	356.2	226	360.3

[1]Calves died before the start of the breeding season.

[a]The average calving interval was 4 days longer in 1988 than in 1987, this difference being significant. The difference in calving interval between the non-weaning and the 48-hour weaning class was quite small (3.5 days) and not statistically different. The variation or range in calving intervals between cows was significantly higher for the non-weaning group than for the 48-hour weaning group. Average calving intervals for the HA and HS cows were 348.5 and 359.0, respectively, this difference was not statistically significant. No statistically significant interactions were found.

Table 5. Effect of 48-hour weaning on calf growth
(Average daily gain in kg)

	No weaning			48 hour weaning		
	1986	1987	Average	1986	1987	Average
April 29 - May 20	0.67	0.85	0.76a	0.56	0.64	0.60b
April 29 - June 30	0.87	1.04	0.95a	0.80	0.96	0.88b
April 29 - fall weaning	1.10	1.16	1.13a	1.05	1.10	1.07b

*48-hour weaning started April 29.

ab - Means within a row are significantly different ($P < 0.01$).

Table 6. Cow weights during 1985-86 winter, kg

	Fall wt. 28/10/85	April wt. 02/04/86	Breeding wt. 28/04/86	ADG Fall to Breeding	Pasture wt. 28/05/86	ADG Fall to Pasture
No Wean						
Control	574	608	533	-.23	523	-.24
Prostaglandin	572	603	532	-.22	517	-.26
Syncro-Mate-B	604	632	559	-.25	544	-.28
Wean						
Control	587	619	547	-.22	535	-.24
Prostaglandin	609	645	567	-.23	548	-.28
Syncro-Mate-B	591	623	543	-.26	512	-.31

Table 7. Cow weights during 1986-87 winter, kg

	November weight 12/11/86	End of weight 23/03/87	Breeding weight 29/04/87	ADG Fall to Breeding	Pasture weight 19/05/87	ADG Fall to Pasture
No Wean						
Control	584	578	553	-.18	541	-.23
Prostoglandin	592	587	561	-.18	548	-.23
Syncro-Mate-B	588	584	560	-.18	548	-.21
Weaned						
Control	583	582	566	-.10	569	-.07
Prostoglandin	580	576	558	-.13	560	-.10
Syncro-Mate-B	578	574	556	-.13	560	-.10

Table 8. Cow fat levels and visual score during 1985-86 winter

	Fall 14/11/85		Pasture 12/05/86	
	mm	Visual	mm	Visual
No Wean				
Control	7.3	2.9	4.8	2.1
Prostaglandin	7.1	2.8	5.2	2.2
Syncro-Mate-B	9.1	3.2	5.7	2.5
Wean				
Control	7.8	2.9	5.4	2.3
Prostaglandin	7.7	3.0	5.5	2.5
Syncro-Mate-B	6.3	2.9	4.7	2.2

Table 9. Cow fat levels in mm during 1986-87 winter

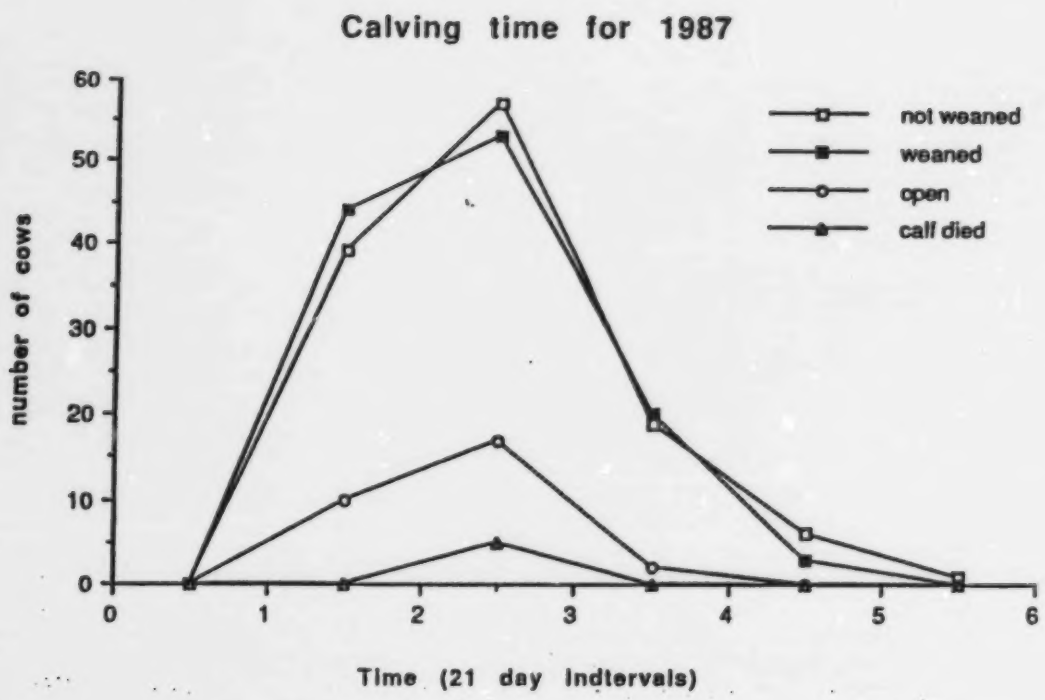
	Fall 23/10/86	Pasture 19/05/87
No wean		
Control	6.0	4.2
Prostoglandin	5.9	3.6
Syncro-Mate-B	6.5	4.4
Weaned		
Control	6.3	5.3
Prostoglandin	7.7	5.7
Syncro-Mate-B	5.9	4.4

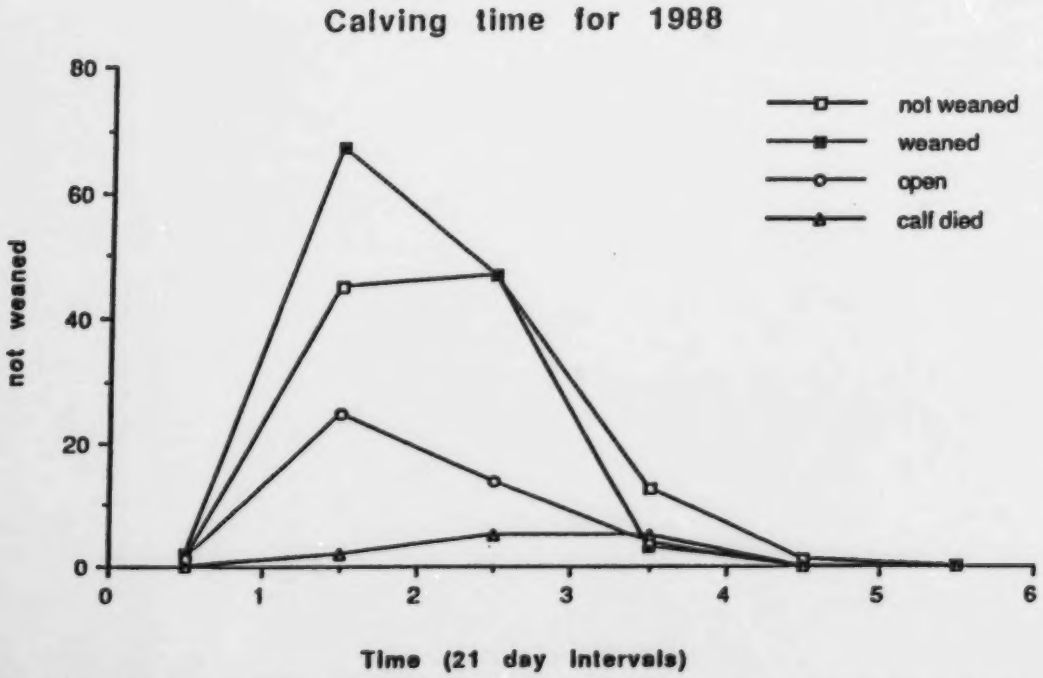
Table 10. Requirements for 550 kg cow nursing a calf (NRC 1984)

	Average Milking (5 kg/day)	Superior Milking (10 kg/day)
Dry matter intake	10.6 kg/day	10.9 kg/day
Net energy maintenance	1.18 MCal/kg	1.5 MCal/kg
Total protein	1.00 kg/day	1.299 kg/day
Net energy metabolism	12.50 MCal/day	16.25 MCal/day
TDN	5.9 kg/day	7.1 kg/day

Daily Ration	DM (kg)	NE (m) MCal	TDN (kg)
Brome-alfalfa hay	5.0	(1.3) 6.5	(55%) 2.75
Barley grain	2.3	(2.06) 4.7	(84%) 1.93
Barley straw	7.6	(0.60) 4.6	(40%) 3.04
	14.9	15.8	7.72

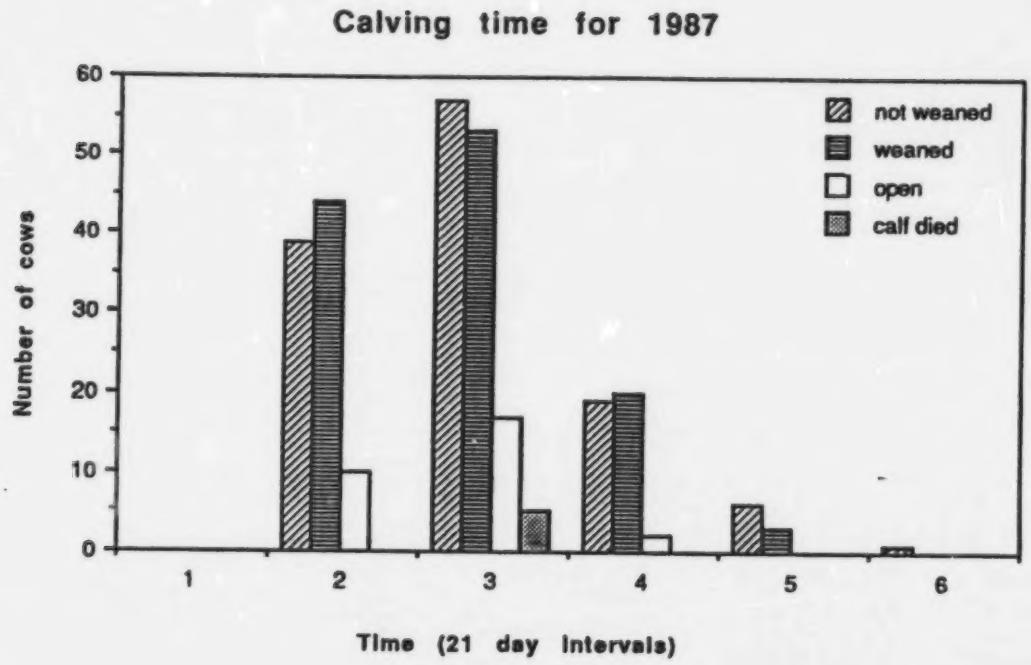
Figure 1.

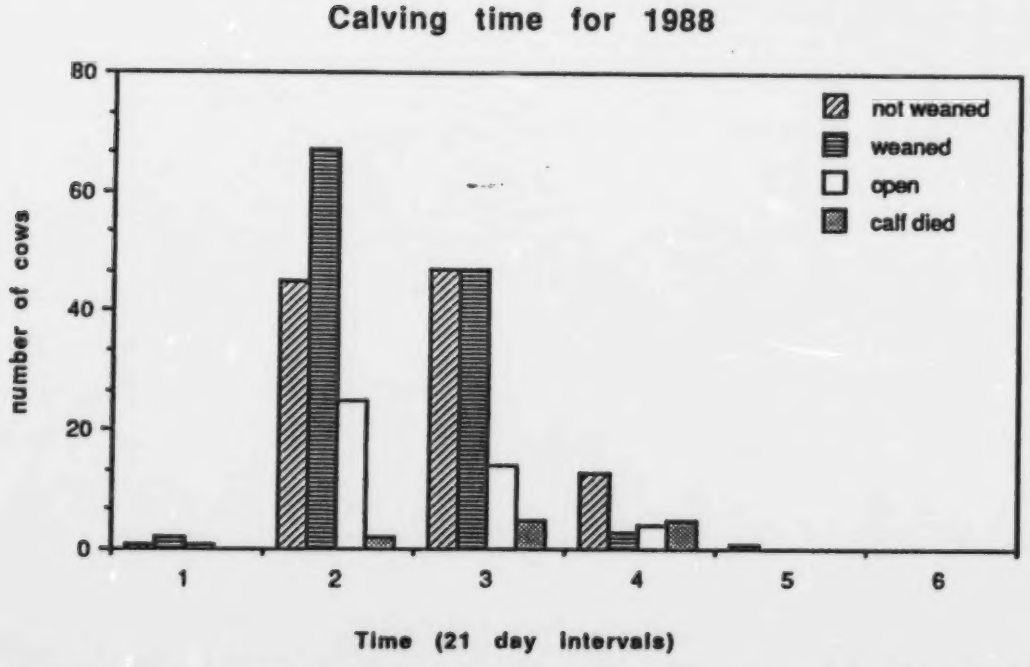




At the beginning of the breeding season half the calves were weaned for 48-hours. Line graphs indicate the number of calves born in 21 day intervals starting Feb. 1 the following year. Cows that were open prior to the breeding season or that

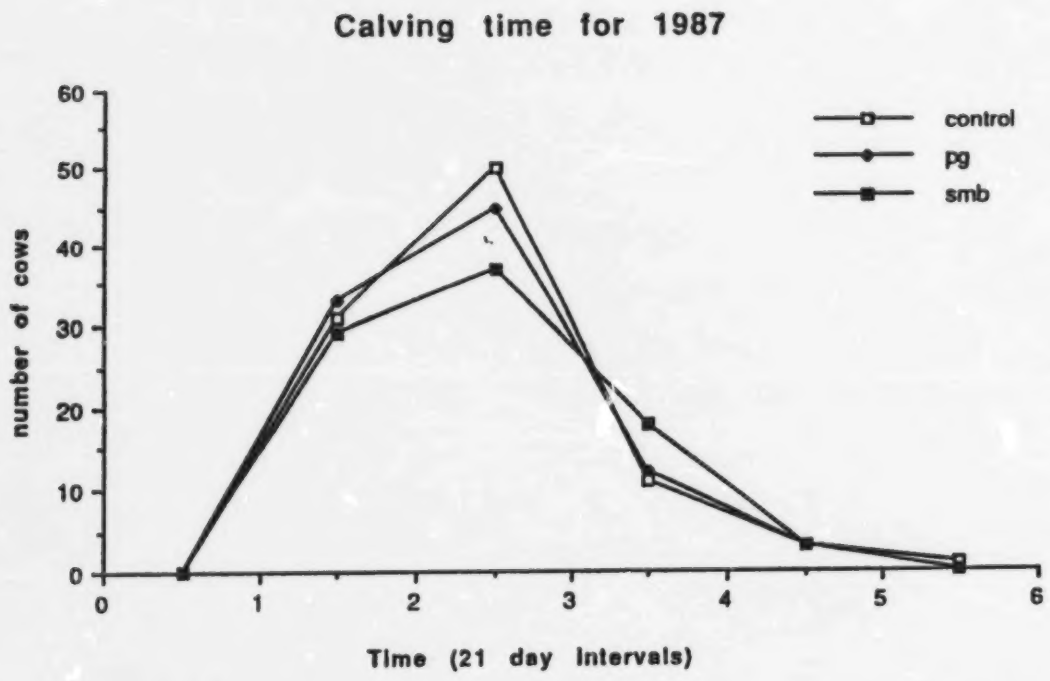
Figure 2.

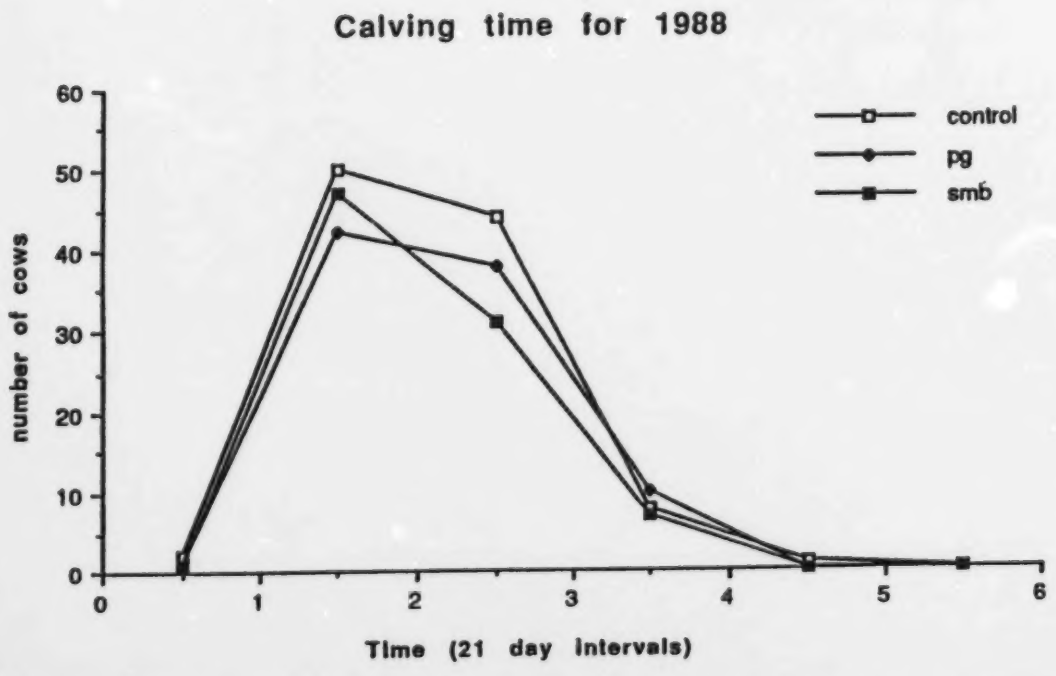




At the beginning of the breeding season half the calves were weaned for 48-hours. Bar graphs indicate the number of calves born in 21 day intervals starting Feb. 1 the following year. Cows that were open prior to the breeding season or that lost their calves are included.

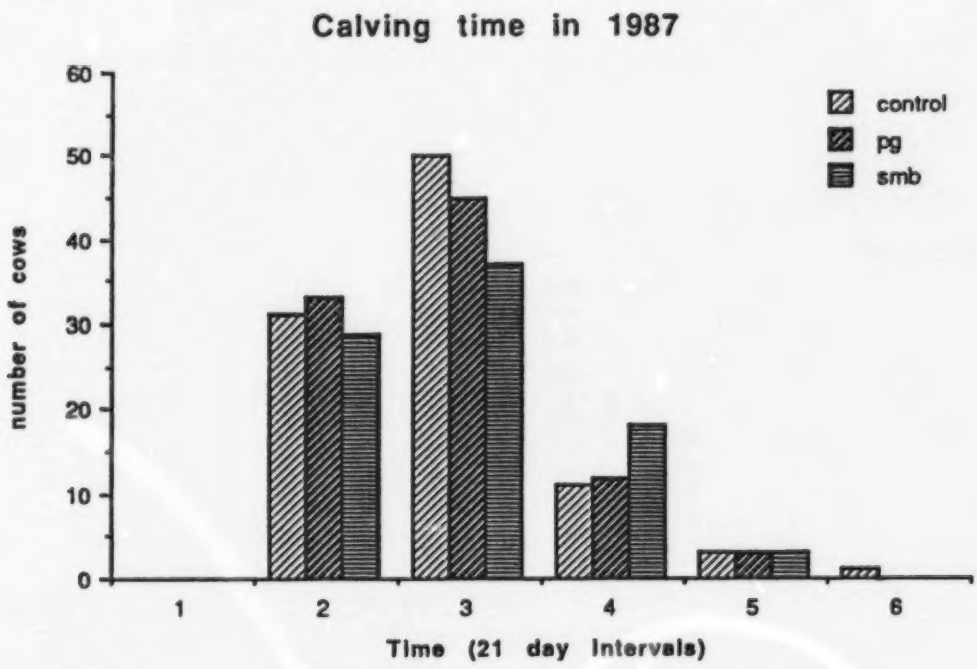
Figure 3.

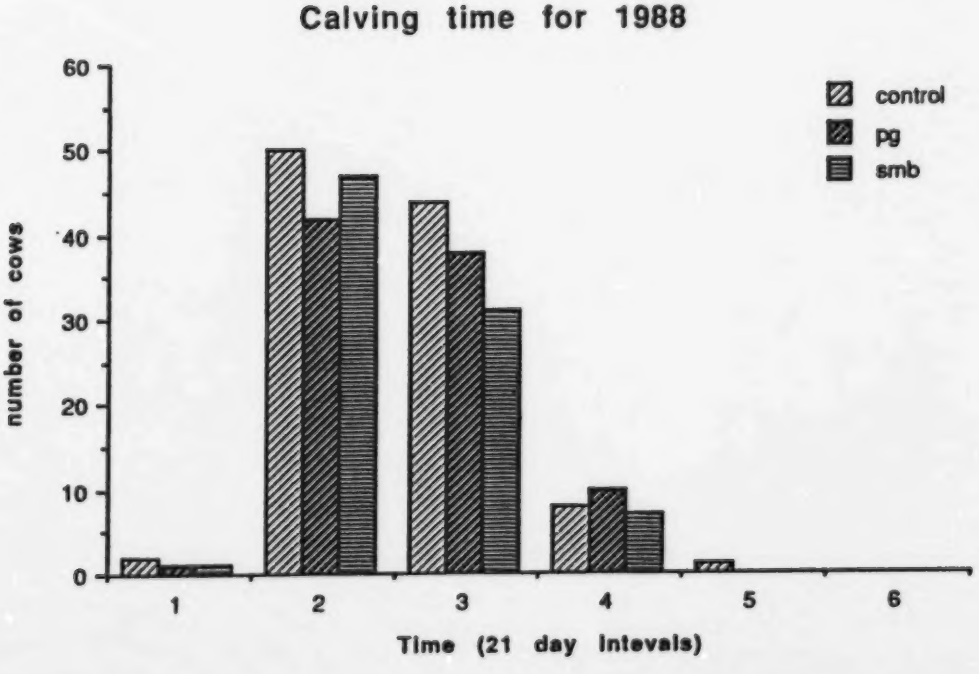




At the beginning of the breeding season cows were treated with Syncro-Mate-B, Estrumate or control and then turned out with bulls. Line graph indicates the number of calves born in 21 day intervals starting Feb. 1 the following year.

Figure 4.





At the beginning of the breeding season cows were treated with Syncro-Mate-B, Estrumate or control and then turned out with bulls. Bar graph indicates the number of calves born in 21 day intervals starting Feb. 1 the following year.

Recommendations for Producers and Extension Personnel

Calving all of your cows within the first 42 days of the calving season should be the goal of every cow-calf producer in Saskatchevan. In order to succeed, both cows and bulls should be able to perform early in the breeding season. Cows must be cycling shortly after parturition and the bulls should be able to successfully complete the required number of services each day. The first step the producer should complete is to have his bulls evaluated for breeding soundness and serving capacity prior to use. This can be done by the local veterinarians. The second important step is to have the cows on an adequate level of nutrition during pregnancy and an increased level of nutrition prior to the breeding season. This can be done by adding some grain to the diet according to NRC nutritional requirements according to the milk producing ability of the cows. With proper nutrition and breeding management cows will successfully conceive starting at 35 days post partum.

During a breeding study conducted at Melfort Research Station, and fiancially assisted by Sask. Agriculture Research Fund, there appeared to be a trend towards a higher proportion of calves born during the first 21 days of the calving season from cows that were weaned for 48 hours at the start of the breeding season. However, 48-hour calf removal resulted in a 5% reduction in calf weight gains. Drug treatments of Syncro-Mate-B or Estrumate did not significantly alter the calving interval or the proportion of cows calving in the first 21 days of the calving season.

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TO EVALUATE PRACTICAL POST-PARTUM NUTRITIONAL AND DRUG MANAGEMENT IN CONTROLLED BREEDING OF BEEF COWS

Duane McCartney
Agriculture Canada Research Station
Melfort, Saskatchewan

ABSTRACT

Weaning calves for 48 hours prior to the start of the breeding season appears to result in cows conceiving earlier in the breeding season. In a trial at the Melfort Research Station, four different experimental groups of cows that had calved during April and early May were used to evaluate the effect of weaning calves prior to breeding. Bulls were turned into cows May 23 which was 20 days earlier than past years. Calves were weaned from the cows for 48 hours on June 5 and 6 in order to induce estrus naturally. At the end of that time the calves were returned to the cows. Cows were pregnancy checked several times in July and August resulting in 29% of the cows being bred in the first few days of the breeding season and 48% of the cows being bred during or after the weaning period.

The resulting calving season in 1986 ended about 3 weeks earlier than in previous years. Further evaluation of the effects of weaning and the use of Estrumate and Synocromate are presently being evaluated.

BACKGROUND AND OBJECTIVES

Cow-calf operators often have an extended calving season. This results from some cows failing to show estrus after calving the previous year within a reasonable period of time. At weaning time there is a wide weight range resulting in a lower selling price to the producer. Research in the United States has shown that Syncro-Mate-B and weaning the calf from the cow 48 hours prior to the breeding season can affect the time for first estrus. G.H. Deutscher et al. 1982, has found the percentage of heifers cycling and pregnant during the first 5 days of the breeding season was considerably higher for the SMB group than for the conventional AI group, 90 vs 27% cycling and 50 vs 18% pregnant.

J. Wiltbank et al. has shown conception rate at first service was higher (80%) when calves were removed for 48 hours at the start of the breeding season as compared to 50% conception in the controls. Eighty percent of the cows managed under the calf removal system calved the first 20 days of the breeding season in contrast to 28% in the control group.

For the past 10 years the Melfort Research Station has evaluated calving cows in Jan.-Feb. vs April-May. As the study has now concluded it was decided to evaluate the use of 48 hour weaning, and hormonal treatment to gradually move the April-May calving group to a February calving date. The information learned in this study could then be related to the on farm situation.

EXPERIMENTAL METHOD

A study was set up at the Melfort Research Station in co-operation with Dr. Bill Cates and Dr. Reuben Mapletoff of the Western College of Veterinary Medicine to evaluate the effect of weaning and post-partum nutrition in controlling the breeding of beef cows. Bulls supplied from PFRA were turned into four different experimental groups of cows that had calved during April and early May 1985. This was about 20 days earlier than past years. On June 5 and 6, the calves were weaned from the cows for 48 hours in order to induce estrus naturally. Calves were housed in portable corrals in the respective pastures and provided with hay and water. At the end of that time the calves were returned to the cows.

On July 8, the bulls were removed after a 6 week breeding season and the cows were pregnancy checked, in order to determine if cows were pregnant prior to the June weaning. The cows were again checked on July 25 and August 8, to determine which cows became pregnant due to the weaning procedure.

During the summer, forage and fecal samples were taken from the various experimental groups. This material along with winter feed samples is presently being analyzed in order to monitor the nutritional intake of the cows and relate it to time of conception.

The calving season commenced around the end of January and finished by the middle of April. All cows that had calved by March 15 (45 days post-partum) were sorted and divided into six groups consisting of:

(Weaning vs no weaning) x (Control vs Syncromate vs Estrumate)

Thus the experiment would be able to evaluate the effects of weaning vs no weaning and how it relates to a Synocromate or Estrumate hormonal treatment.

Cattle were allotted to their experimental treatments on April 30, 1986. Half the calves were weaned. Cows were either treated as controls, Estrumate or Synocromate within weaned and non-weaned pens. Cows and calves were weighed and udders examined prior to and at the conclusion of the study in order to evaluate the effects of weaning. Calves were weaned and locked inside a metal cattle shed for 48 hours. Adequate bedding, water and hay were supplied. The cows were given 2 ml of Estrumate a synthetic prostaglandin analogue related to prostaglandin F_2 prior to breeding or an implant of Syncro-Mate B. The breeding season will last 6 weeks at which time pregnancy checking will be done. A second replicate of the study commenced on May 14 and included the balance of the late cow herd.

Syncro-Mate B supplied by P.V.U. Inc. Ltd. of Edmonton under an experimental permit contains a synthetic form of progesterone. It is designed to prevent the female from exhibiting estrus, or ovulating, as long as it remains implanted. The implants are injected under the ear 9 days prior to breeding and removed at the start of the breeding season.

Estrumate supplied by Copper Agropharm of Calgary causes a functional and morphological regression of the corpus luteum in cattle. This usually results in estrus two to five days after treatment, followed by ovulation with normal fertility.

RESULTS AND DISCUSSION

During the 1985 breeding season 29% of the cows were bred in the first few days of the breeding season without the aid of weaning. It appeared that 48% of the cows were bred during or after the weaning period. No obvious deterimental effects were observed on the cows or calves as a result of weaning.

Calving season ended by mid-April which was 3 weeks earlier than previous years. The 1986 breeding season started on April 30 and May 14 and this was also earlier than the May 23 date of 1985 and June 15 date of 1984. Thus we have been able to move the breeding season back by one month in two years.

The results of the pasture quality analysis and winter feed analysis has not been completed. It appears that cows will conceive as long as they are on adequate nutrition prior to and during the breeding season.

In the second phase (1986 breeding season) of this experiment, the effects of weaning and the use of Syncromate and Estrumate will be analyzed.

SARF Project #5-84-57 Progress Report

To evaluate Practical Post-Partum Nutritional and Dairy Management in Controlled Breeding of Beef Cows

This project commenced with the start of this year's breeding season on May 23. Bulls were semen evaluated prior to the breeding season. Since the Syncro-Mate-B (Progestogen) did not arrive from the United States in time for this year's breeding season, it was decided to measure the effect of using bulls alone to induce early estrus in cows. Bulls were turned into four different experimental groups of cows that had calved during April and early May. This was about 20 days earlier than past years. On June 5 and 6 the calves were weaned from the cows for 48 hours in order to induce estrus naturally. At the end of that time the calves were returned to the cows.

On July 8 the bulls were removed after a 6 week breeding season and the cows were pregnancy checked by Dr. Bill Cates, W.C.V.M., in order to determine if cows were pregnant prior to the June weaning. The cows were again checked on July 25 and August 8 to determine which cows became pregnant due to the weaning procedure. All cows will be rechecked in mid October at which time we will be able to assess our results.

The enclosed chart briefly outlines the preliminary results of the trial. A large number of cows were bred in the first few days of the breeding season. In examining the August 8 pregnancy check, it appears that a large proportion of the cows were bred during or after the weaning period. The August 22 pregnancy check indicates the number of animals bred the second cycle after weaning. There has not been enough time to analyze the data in greater detail. This will be done in early winter.

During the summer, forage and fecal samples were taken from the various experimental groups. This material along with winter feed samples will be analyzed in order to monitor the nutritional intake of the cows and relate it to time of conception.

In regards to our financial statement, the travel and some semen testing expenses will be paid in late October after our final pregnancy check of the herd. During the winter months funds will be required for laboratory supplies to analayze the forage grab samples, feed samples and fecal samples collected from the study. The remainder of last year's funds will be used this winter in ordering the Syncro-Mate-B semen testing and arranging for extra bulls for next year's breeding season.

Number of Cows Pregnant

Bulls In May 23, 1985			Out July 8, 1985		
PEN 1 - 33 Head	July 9	July 29	August 8	August 22	Open
	10		14	2	7
Pen 3 - 42 Head	17		19	1?	2 (1 adhesion)
Pen 6 - 33 head	5		16	5, 1?	2 open 3 cul? 1 missed
Pen 8 - 48 Head	14		26	2	6 open

Weaned Calves June 5 and 13 & 14 days after start of breeding season.
July 9-33 days after weaning Bred before weaning
July 29-52 days after weaning
August 8- 62 days after weaning One cycle after weaning
August 22- 76 days after weaning

Number of Days Cows are Pregnant

	31-32	33-35	35-40	38-40	40-45	45-50	42-47	50-55	55-60	60-65
Pen 1										
July 9	3	3			3		1			
August 8			3			1		4	6	
August 22					2					
Pen 3										
July 9	6	8		2(38-42)			1			
August 8			2			3		2	10	
August 22					1					
Pen 6										
July 9	1	1	1	2						
August 8	2		2		2	4		4	3	
August 22					4					
Pen 8										
July 9	6	4(34-37)		1(38-42)	1	1				1
August 8			11		6	3		5	1	
August 22					2					1